WE CLAIM AS OUR INVENTION:

1. A method for planning and generating a magnetic resonance tomography (MRT) slice of an examination subject, based on a deformation-free, corrected MRT overview image using an MRT device having a nonlinear gradient system and access to stored data representing nonlinear variations associated with the nonlinear gradient system, said method comprising the steps of:

generating an MRT overview image of a subject;

correcting said MRT overview image based on the stored data regarding the nonlinear variations, thereby obtaining a corrected MRT overview image;

in said corrected MRT overview image, selecting a planar slice and determining variations in said planar slice based on the stored data;

calculating an MRT pulse sequence, including at least one radio-frequency excitation pulse and at least two gradient pulses, such that upon emission of said at least one radio-frequency excitation pulse and said at least two gradient pulses said planar slice exhibits a curvature that is inverse to the nonlinear variations in the corrected MRT overview image; and

acquiring data for said planar slice from the subject by executing said MRT sequence.

2. A method as claimed in claim 1 comprising measuring said data represent nonlinear variations associated with the nonlinear gradient system only once, and storing said data in a memory.

3. A method as claimed in claim 2 comprising storing said data as a dataset in a memory in a processor selected from the group consisting of a system computer of said MRT device and a sequence control of said MRT device.

4. A method as claimed in claim 1 comprising calculating said at least one radio-frequency excitation pulse and said at least two gradient pulses in said MRT sequence according to a method for calculating spatially selected pulses.

5. A magnetic resonance tomography (MRT) apparatus comprising:

an MRT scanner for acquiring magnetic resonance data from a subject, said MRT scanner having an RF system, a nonlinear gradient system, and a memory containing stored data representing wherein nonlinear variations associated with the nonlinear gradient system;

a system computer and a sequence control for operating said MRT scanner to generate an MRT overview image of the subject;

a processor having access to said memory for correcting said MRT overview image based on the stored data, thereby obtaining a corrected MRT overview image;

a user interface allowing a user to select, in said corrected MRT overview image, a planar slice, and said processor then determining variations in said planar slice based on the stored data;

said processor calculating an MRT pulse sequence, including at least one radio-frequency excitation pulse and at least two gradient pulses, such that upon emission of said at least one radio-frequency excitation pulse by said RF system and emission said at least two gradient pulses by said nonlinear gradient system cause said planar slice to exhibit a

curvature that is inverse to the nonlinear variations in the corrected MRT overview image; and

said MRT scanner acquiring data for said planar slice from the subject by executing said MRT sequence.

6. A magnetic resonance tomography apparatus as claimed in claim 5 comprising wherein said processor is said system computer.

7. A magnetic resonance tomography apparatus as claimed in claim 5 comprising wherein said processor is said sequence control.

8. A magnetic resonance tomography apparatus as claimed in claim 5 wherein said processor calculates said at least one radio-frequency excitation pulse and said at least two gradient pulses in said MRT sequence according to a method for calculating spatially selected pulses.